

Supporting Information

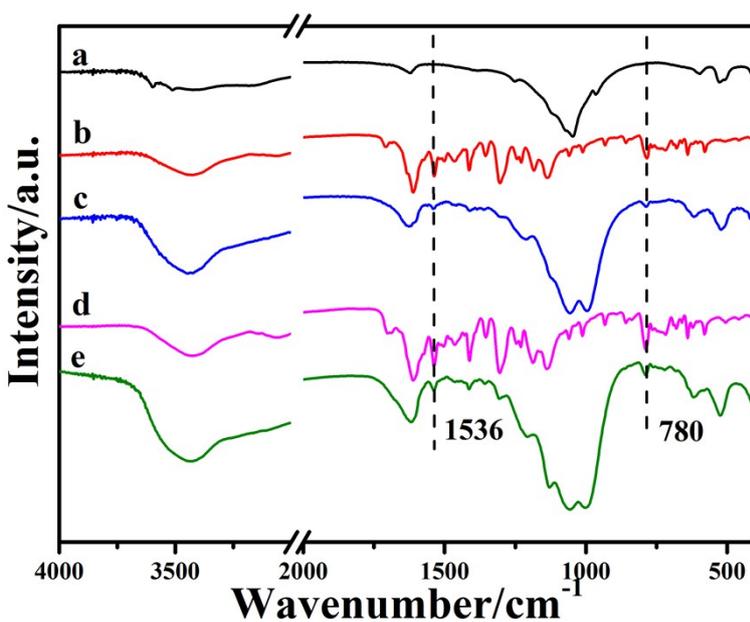


Figure S1. FTIR spectrum of α -ZrP (a), 2 (b), ZrPB-0.5 (c), 1 (d), ZrPA-0.5 (e).

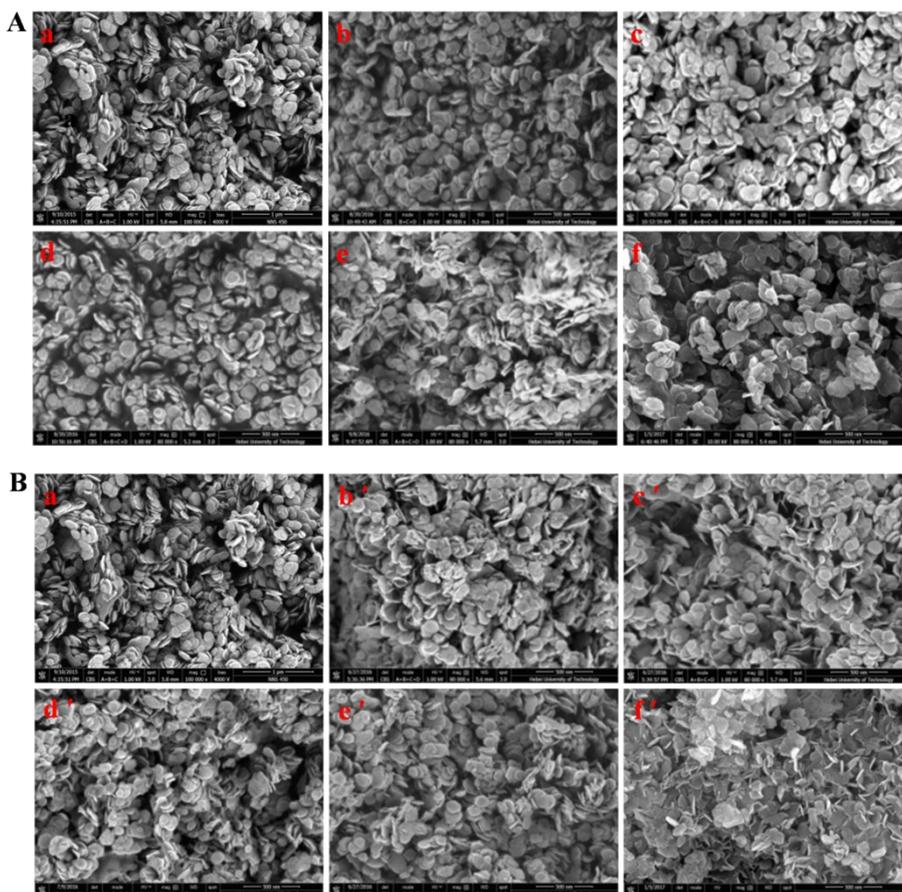


Figure S2. SEM image of the intercalation compounds.

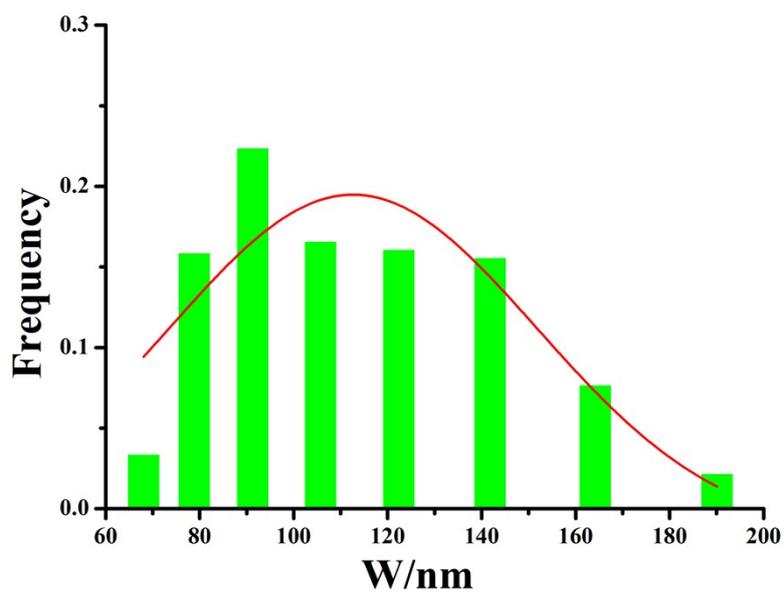


Figure S3. The hydrodynamic diameter of ZrP dispersed in water measured with the DLS method.

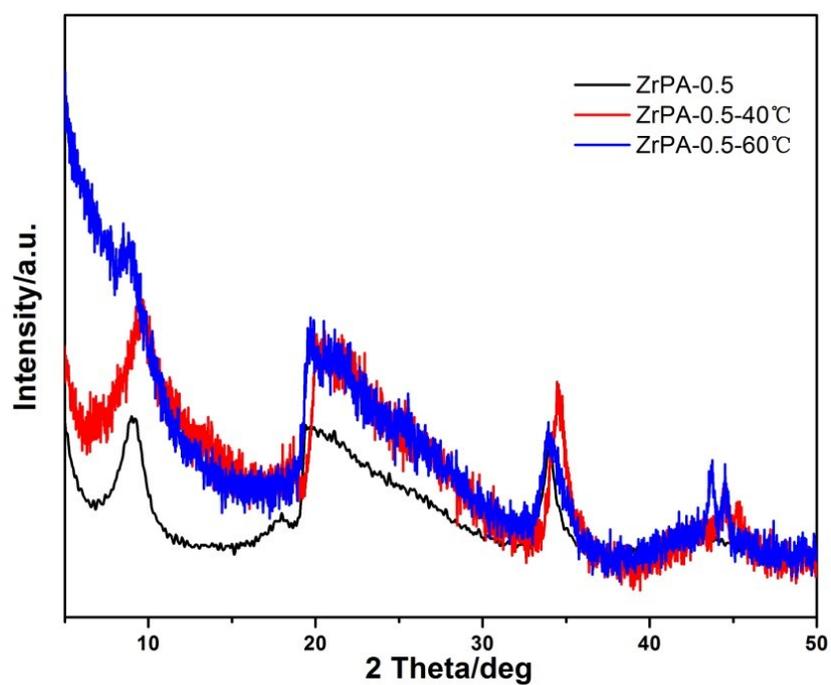


Figure S4. XRD patterns of ZrPA-0.5 before and after heating at 40/60 °C for 30 min.

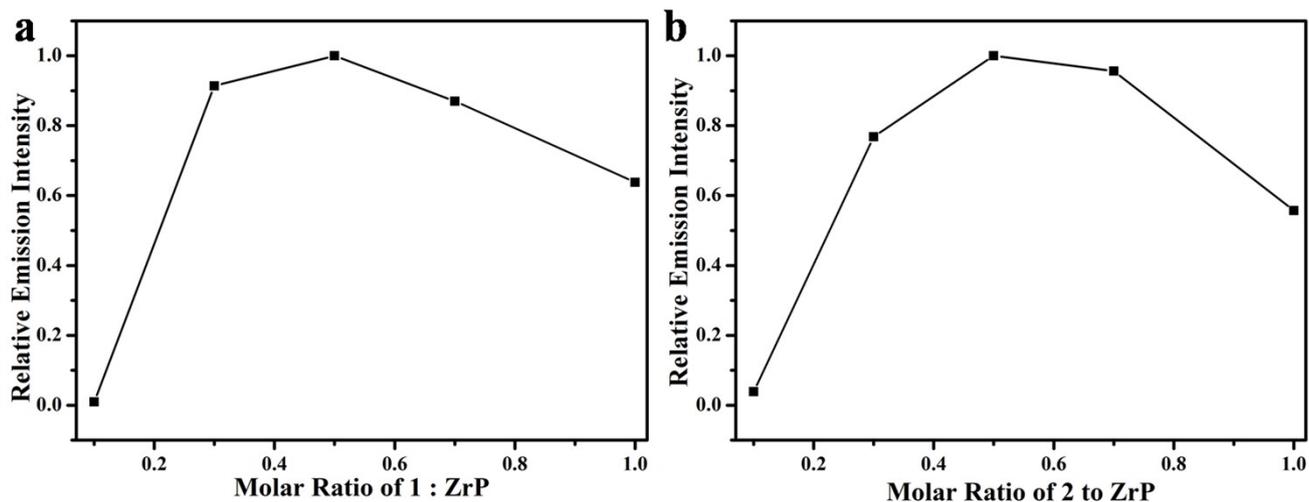


Figure S5. Luminescence intensity at 614 nm versus the amount of 1 (a) and 2 (b) initially added to the reaction mixture containing ZrP.

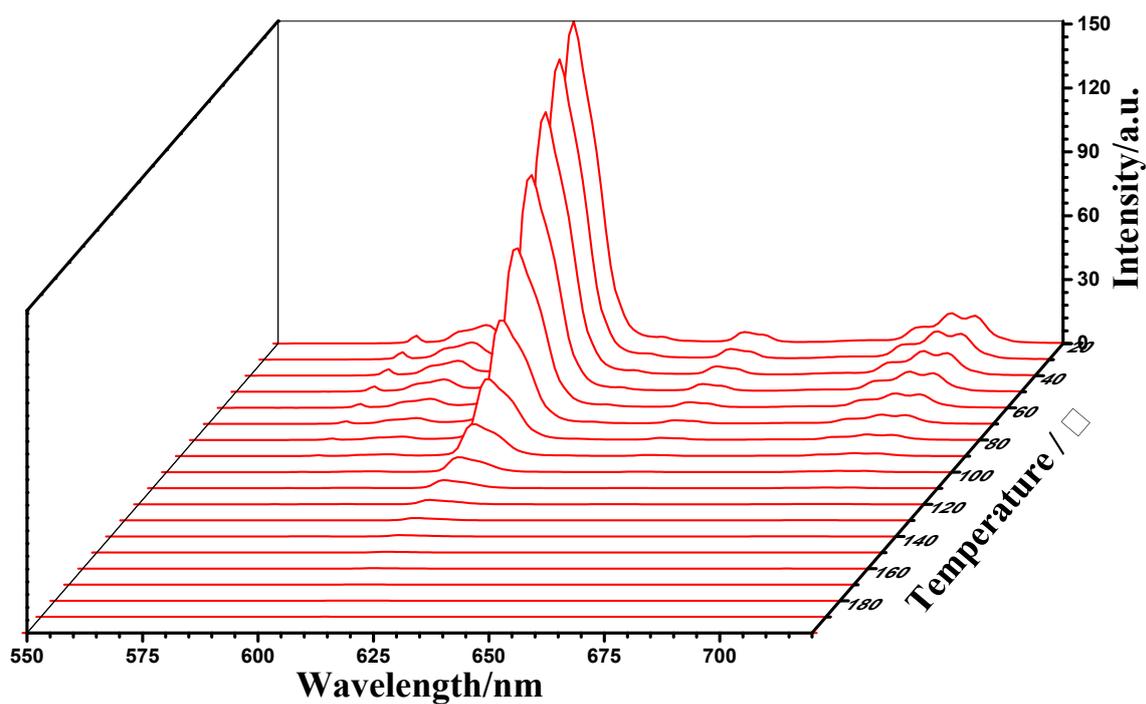


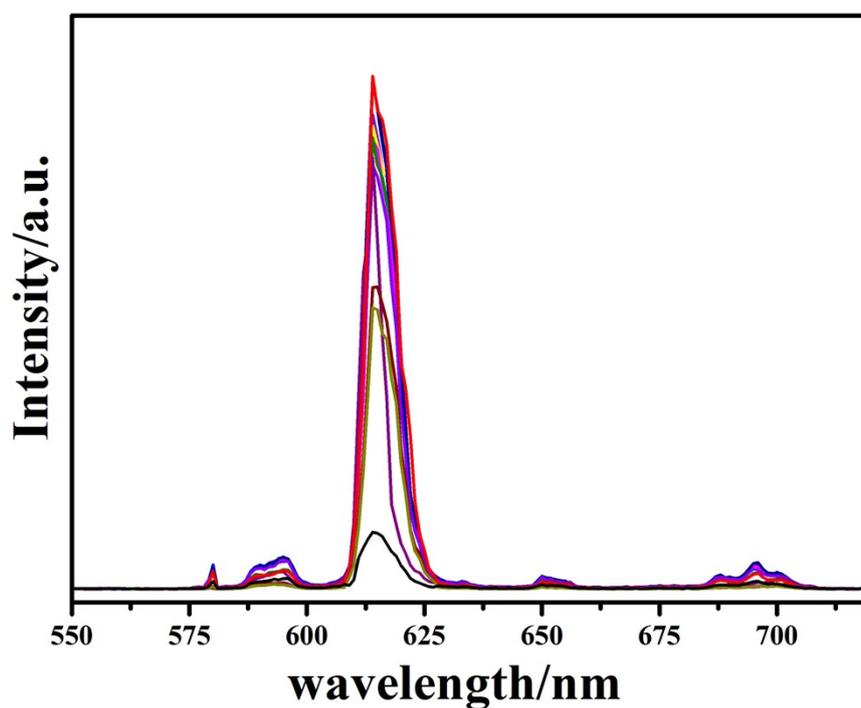
Figure S6. Temperature-dependent emission spectra of ZrPA-0.5 (at 375 nm excitation).

Table S1. Variation of decay time of ZrPA-0.5 and **1** under UV irradiation

Time/h	0	2	4	6	8	10
$\tau(\text{ZrPA-0.5})/\text{ms}$	0.53	0.53	0.51	0.53	0.51	0.53
$\tau(\mathbf{1})/\text{ms}$	0.54	0.55	0.54	0.54	0.53	0.54

Table S2. Variation of decay time of ZrPB-0.5 and **2** under UV irradiation

Time/h	0	2	4	6	8	10
$\tau(\text{ZrPB-0.5})/\text{ms}$	0.55	0.54	0.53	0.54	0.55	0.53
$\tau(\mathbf{2})/\text{ms}$	0.57	0.56	0.55	0.56	0.56	0.56

**Figure S7.** Emission spectra of ZrPA upon contact with various amine solvent vapors.

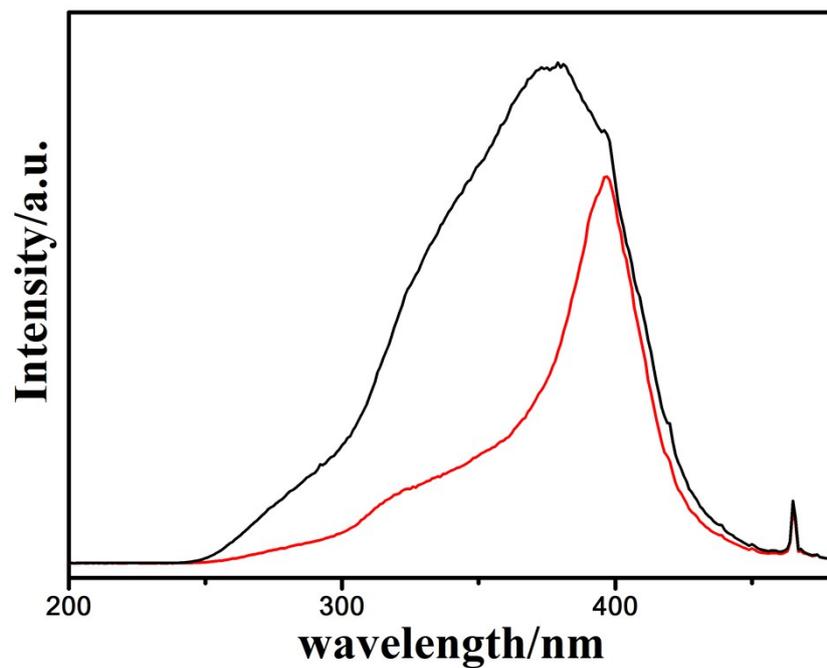


Figure S8. Excitation spectra of ZrPA before (black line) and after exposure to En (red line).

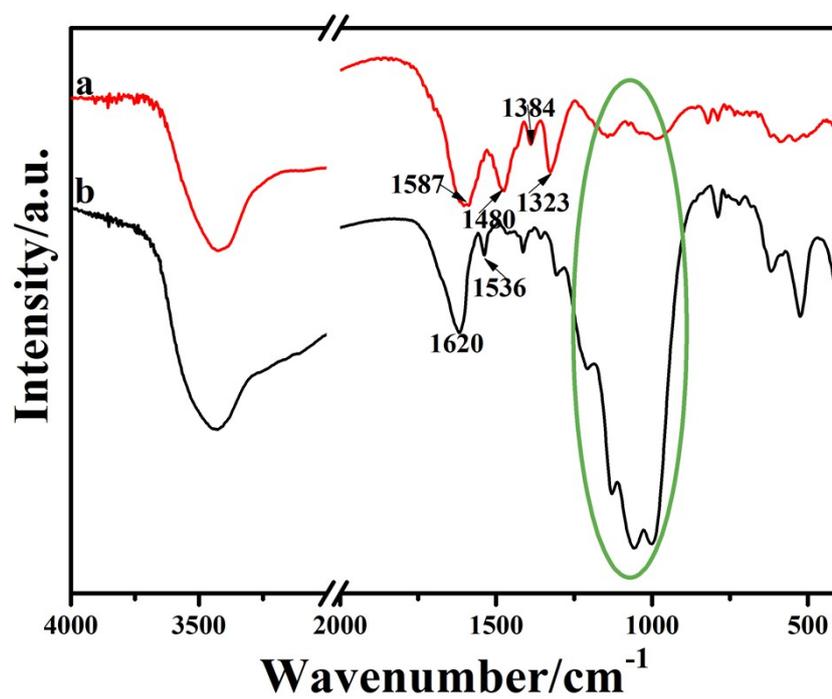


Figure S9. FTIR spectra of ZrPA after exposure to En (a), and ZrPA (b).